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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,568	01/16/2007	Roland Anderegg	2360-0444PUS1	8022

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EXAMINER	
LE, TOAN M	

ART UNIT	PAPER NUMBER
2863	

NOTIFICATION DATE	DELIVERY MODE
02/06/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)
	10/572,568	ANDEREGG ET AL.
	Examiner	Art Unit
	Toan M. Le	2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 16 January 2007.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-3,5-14,17,18 and 20 is/are rejected.

7)☒ Claim(s) 4,15,16 and 19 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 17 March 2006 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 3/17/06.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

If applicant desires to claim the benefit of a prior-filed application under 35 U.S.C. 371, a specific reference to the prior-filed application in compliance with 37 CFR 1.78(a) must be included in the first sentence(s) of the specification following the title or in an application data sheet. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications.

If the instant application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR

1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Drawings

The drawings are objected to because Figures 6 and 7: lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (poor line quality). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from

the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-14, 17-18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderegg et al. (US Patent No. 6,431,790).

Referring to claim 1, Anderegg et al. disclose a method for determination of soil stiffness levels of a soil area, in which case one and the same self-propelled apparatus (1) is used not only to determine the absolute soil stiffness level (k_B) when located on at least one predetermined soil subarea (3) of the soil area but also to determine a plurality of relative soil stiffness levels (s) while crossing over a plurality of soil subareas of the soil area, in which case a vibration unit (5) of the apparatus (1) is moved to a predetermined soil subarea (3) in order to determine an absolute soil stiffness level (k_B), is left there and a first time-variable excitation

force is applied by means of the vibration unit (5) in permanent contact with the soil surface, in which case the vibration unit (5) and the predetermined soil subarea (3) represent a single oscillating system and first data items of a first oscillation response of the oscillating system and second data items of the first time-variable excitation force are determined, and an absolute soil stiffness level k_B of the predetermined soil subarea (3) is determined from the first and second data items, the vibration unit (5) is moved to the soil surface of one of the soil subareas of the soil area in order to determine a plurality of relative soil stiffness levels (s) of a plurality of soil subareas, a second time-variable excitation force acts on the vibration unit (5) in such a way that the vibration unit (5) is lifted off the soil surface (2) and can thus be moved in a jumping manner to a plurality of the soil subareas, third data items of a second oscillation response of the oscillation of the vibration unit (5), caused by the second excitation force, and fourth data items of the oscillation of the second excitation force are determined, and relative soil stiffness levels (k_B) of the soil subareas are determined successively and continuously over the soil area from the third and fourth data items (col. 3, lines 38-66; col. 4, lines 35-64; col. 5, lines 11-50).

As to claim 2, Anderegg et al. disclose a method for determination of soil stiffness levels of a soil area, characterized in that the first time-variable excitation force is produced as a periodic first force with a maximum first oscillation level, which is directed at right angles (with the exception of an adjustment tolerance) against the soil surface (2), and the periodicity is adjusted in such a manner that the oscillating system is at resonance, and the first and the second data items include the resonant frequency and a phase angle between a time sequence of maximum oscillation values of the first excitation force and of the first oscillation response (col. 5, lines 11-50).

Referring to claim 3, Anderegg et al. disclose a method for determination of soil stiffness levels of a soil area, characterized in that the second time-variable excitation force is produced with a second periodic force, the second force has a maximum oscillation level which is greater than a first maximum oscillation level of a first periodic force of the first excitation force in such a way that the vibration unit (5) is lifted off the soil surface
(2), in which case the second maximum oscillation level of the second periodic force is directed obliquely to the rear with respect to the vibration unit towards the soil surface (2), in order that the vibration unit (5) can be moved in the forward direction, and a lowest determined subharmonic frequency is determined, as the third data items of the second oscillation response, as a measure for a relative soil stiffness (s) with a relative soil stiffness (s) becoming greater, the lower the lowest determined subharmonic oscillation is (col. 5, lines 11-50).

As to claim 5, Anderegg et al. disclose a method for determination of soil stiffness levels of a soil area, characterized in that the second force, which is greater than a first maximum oscillation level of a periodic force of the first excitation force, is set in that at least one unbalance revolves, and preferably at least two unbalances revolve in opposite directions, and in particular two unbalances revolve in opposite directions with a mutual position offset, and their speed of revolution is correspondingly increased (col. 9, lines 25-67 to col. 10, lines 1-67 to col. 11, lines 1-38).

Referring to claim 6, Anderegg et al. disclose a method for determination of soil stiffness levels of a soil area, characterized in that the second force, which is greater than a first maximum oscillation level of a periodic force of the first excitation force, is set in that at least one unbalance revolves, and the mass distribution of at least one unbalance is varied radially

and, except for soil tolerances, a periodicity of the second excitation force preferably corresponds to a resonant frequency of the oscillating system (col. 9, lines 25-67 to col. 10, lines 1-67 to col. 11, lines 1-38).

As to claim 7, Anderegg et al. disclose a method for determination of soil stiffness levels of a soil area, characterized in that respective position coordinates of a soil subarea are determined for relative or absolute soil stiffness levels, the values of the soil stiffness are stored, in particular together with the position coordinates, and are transmitted, preferably to a control center, in which case, in particular, the relative values of the soil stiffness are stored together with a predetermined positional coordinate grid (Figures 4, 6, and 7).

Referring to claim 8, Anderegg et al. disclose an apparatus which propels itself on a soil surface in order to carry out a method as claimed in claim 1 for determination of soil stiffness levels of a soil area with a vibration unit, which can be moved into contact with the soil surface, in which case the vibration unit (5) can preferably also be used for soil compaction, the apparatus (1) has a force production unit by means of which a periodic first excitation force and a second excitation force, which is not the same as the first, and which act on the vibration unit (5) can be produced, in which case the first excitation force can be adjusted by means of the force production unit in such a way that the maximum oscillation amplitude of the first excitation force can be directed at right angles against the soil surface, the period of the first excitation force can be adjusted in such a way that resonance of an oscillating system formed from the vibration unit and a predetermined soil subarea of the soil area can be achieved, and the vibration unit (5) never loses contact with the soil subareas of the soil area under the influence of the first excitation force, the second excitation frequency can be adjusted by means

of the force production unit in such a way that the maximum oscillation amplitude of the second excitation force can be directed obliquely with respect to the soil surface and the excitation force is sufficiently large that the vibration unit loses soil contact in a jumping manner, as a measurement means with which oscillation data of the excitation force as well as oscillation data of the vibration unit can be determined as an oscillation response, and has an evaluation unit by means of which at least one absolute value of a soil stiffness of a predetermined soil subarea of a soil area can be determined by means of the first excitation force from the oscillation data of the excitation force and the data of an oscillation response of the vibration unit (5), and a plurality of relative values of soil stiffnesses of predetermined soil subareas of the soil area can be determined by means of the second excitation force (col. 3, lines 38-66; col. 4, lines 35-64; col. 5, lines 11-50).

As to claim 9, Anderegg et al. disclose an apparatus which propels itself on a soil surface in order to carry out a method as claimed in claim 1, characterized in that the vibration unit (1) is part of a so-called vibration plate (col. 11, lines 46-50).

Referring to claim 10, Anderegg et al. disclose an apparatus which propels itself on a soil surface in order to carry out a method as claimed in claim 1, characterized in that the vibration unit (5) has an adjustable steady-state unbalance moment and/or an adjustable excitation frequency for at least one rotating unbalance, in order that relative soil stiffness levels can be determined with a first unbalance moment and/or at a first excitation frequency, preferably together with soil compaction, and absolute soil stiffness levels can be determined with a second unbalance moment, which is not same as the first unbalance moment and/or at a second excitation frequency, which is not the same as the first excitation frequency, and soil

compaction can be carried out with a third unbalance moment, which is not the same as the first or second unbalance moment, and/or at a third excitation frequency, which is not the same as the first or second excitation frequency (col. 9, lines 25-67 to col. 10, lines 1-67 to col. 11, lines 1-38).

As to claim 11, Anderegg et al. disclose an apparatus which propels itself on a soil surface in order to carry out a method as claimed in claim 1, characterized in that the first or second unbalance moment can be produced by two unbalances which revolve in opposite directions but at the same rotation speed, in which case the rotation speed can be adjusted in order to produce different excitation frequencies (col. 9, lines 25-67 to col. 10, lines 1-67 to col. 11, lines 1-38).

Referring to claim 12, Anderegg et al. disclose an apparatus which propels itself on a soil surface in order to carry out a method as claimed in claim 1, characterized by indication means, by means of which compaction levels can be indicated, in order to find out whether a compaction increase which exceeds a predetermined tolerance can still be achieved by further passes (col. 9, lines 25-67 to col. 10, lines 1-67 to col. 11, lines 1-38).

As to claim 13, Anderegg et al. disclose an apparatus which propels itself on a soil surface in order to carry out a method as claimed in claim 1, characterized in that the measurement means has a data memory, an evaluation unit and a position detection unit for determination of position coordinates of a soil area on which the apparatus is currently located, in which case the determined relative and absolute soil stiffness levels can be stored in the data memory, preferably together with the associated position coordinates, and soil-specific weighting values, which can be stored in the data memory, can be determined from stored soil

stiffness levels by the evaluation unit, in which case the relative values of the soil stiffness can be converted to absolute values by means of the weighting values, and a transmission unit is preferably provided, by means of which these stored data items can be transmitted to a control center and, in particular, the apparatus has an indicator for the absolute values and preferably for the relative values (col. 3, lines 38-66; col. 4, lines 35-64; col. 5, lines 11-50; Figures 4, 6, and 7).

Referring to claim 14, Anderegg et al. disclose a method for determination of soil stiffness levels of a soil area, characterized in that the second time-variable excitation force is produced with a second periodic force, the second force has a maximum oscillation level which is greater than a first maximum oscillation level of a first periodic force of the first excitation force in such a way that the vibration unit (5) is lifted off the soil surface (2), in which case the second maximum oscillation level of the second periodic force is directed obliquely to the rear with respect to the vibration unit towards the soil surface (2), in order that the vibration unit (5) can be moved in the forward direction, and a lowest determined subharmonic frequency is determined, as the third data items of the second oscillation response, as a measure for a relative soil stiffness (s) with a relative soil stiffness (s) becoming greater, the lower the lowest determined subharmonic oscillation is) col. 3, lines 38-66; col. 4, lines 35-64; col. 5, lines 11-50).

As to claim 17, Anderegg et al. disclose a method for determination of soil stiffness levels of a soil area, characterized in that the second force, which is greater than a first maximum oscillation level of a periodic force of the first excitation force, is set in that at least one unbalance revolves, and preferably at least two unbalances revolve in opposite directions,

and in particular two unbalances revolve in opposite directions with a mutual position offset, and their speed of revolution is correspondingly increased (col. 9, lines 25-67 to col. 10, lines 1-67 to col. 11, lines 1-38).

Referring to claim 18, Anderegg et al. disclose a method for determination of soil stiffness levels of a soil area, characterized in that the second force, which is greater than a first maximum oscillation level of a periodic force of the first excitation force, is set in that at least one unbalance revolves, and preferably at least two unbalances revolve in opposite directions, and in particular two unbalances revolve in opposite directions with a mutual position offset, and their speed of revolution is correspondingly increased (col. 9, lines 25-67 to col. 10, lines 1-67 to col. 11, lines 1-38).

As to claim 20, Anderegg et al. disclose a method for determination of soil stiffness levels of a soil area, characterized in that the second force, which is greater than a first maximum oscillation level of a periodic force of the first excitation force, is set in that at least one unbalance revolves, and the mass distribution of at least one unbalance is varied radially and, except for soil tolerances, a periodicity of the second excitation force preferably corresponds to a resonant frequency of the oscillating system (col. 9, lines 25-67 to col. 10, lines 1-67 to col. 11, lines 1-38).

Allowable Subject Matter

Claims 4, 15, 16, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for allowance of claims 4, 15, and 16 is the inclusion of the amplitude values of the third data items with respect to the maximum oscillation level of the excitation oscillation with individual weighting factors to be determined forming a sum, in which case the sum value is the respective location-specific absolute value, and the individual weighting factors are determined from a plurality of measurements, in which case the number of measurements corresponds to the number of weighting factors, and in which case the magnitude of the sum after a calibration process is a measure of an absolute soil compaction level or of an absolute soil stiffness of a soil subarea which is just been moved over.

The reason for allowance of claim 19 is it depends upon allowable claim 4.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M. Le whose telephone number is (571) 272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Toan Le

January 22, 2008

John Barlow
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